

REMARKS

Review and reconsideration on the merits are requested.

Claim Amendments

Applicants amend claims 1 and 8 to call for a X-ray diffraction with a half width of 50 seconds or less in a diffraction plane as defined in claim 1. Support occurs in Examples 6 and 7 (see Table 2, Table 3 and Fig. 3 in the specification).

They also delete the “wherein” clause inserted into claims 1 and 8 in the last Amendment.

The Prior Art

U.S. 6,936,357 Melnik et al (Melnik); “Dislocation Reduction in AlN and GaN Bulk Crystals Grown by HVPE” (Albrecht).

The Rejections

Claims 1, 2 and 8 as anticipated by Melnik. Page 2 of the Action.

Claims 1, 2 and 8 as anticipated by Melnik as evidenced by Albrecht. Page 5 of the Action.

Claims 1, 2 and 8 as being obvious over Albrecht in view of Melnik. Page 7 of the Action.

The Examiner’s position is set forth in the Action in detail and will not be repeated here except as necessary to understand Applicants’ traversal in view of the claims as amended which is now presented.

Rejection of Claims 1, 2 and 8 as Anticipated by Melnik and as Being Anticipated by Melnik as Evidenced by Albrecht

With respect to anticipation, Applicants respectfully submit that amended claim 1 and amended claim 8 are novel in view of the prior art relied upon.

First, Melnik discloses an FWHM of 60 seconds for GaN crystals grown by HYPE but does not disclose an FWHM of 50 seconds or less as claimed in amended claims 1 and 8.

Thus, one of ordinary skill in the art, referring to Melnik, which does not teach or suggest the FWHM of 50 seconds or less, would not find amended claims 1 or 8 to be anticipated by Melnik.

Second, in order to overcome the inherency related argument raised by the Examiner, Applicants believe it appropriate to discuss in more detail the disclosure in Albrecht.

In GaN crystals grown by HYPE, Albrecht teaches that the FWHM for the (0002) plane is smaller than that for (11-24) plane (see the first paragraph of section 2.2 on page 454). Albrecht then proceeded to make some remarks on the basis of dislocation formation and interaction and concluded that the reduced FWHM of the symmetrical reflection (0002) plane indicated a low density of dislocations with a c-component in this specific crystal as compared to a-dislocations (large FWHM of asymmetric reflection (11-24) plane)) (lines 7-9 on page 455).

Since the FWHM for the (11-24) plane is necessarily (always) more than that for the (0002) plane, as evidenced by Albrecht, the FWHM for the (11-24) plane in the GaN disclosed in Melnik by necessity would be more than 60 seconds if it was measured for the (11-24) plane.

A FWHM for (20-24) plane in the GaN disclosed in Melnik would be more than 60 seconds, even if it has or there is a close correlation between the FWHM for the (20-24) plane and the FWHM for (11-24) plane as stated by the Examiner (lines 11-13 on page 7 of the Action).

By limiting to an FWHM of 50 seconds or less for the (20-24) plane as defined above, the products as claimed in the present application are distinctly different, particularly in performance showing high emission power at a low driving voltage (see Examples 6 and 7 in Table 3 and Fig.

3), from those disclosed in Melnik. This is realized by the producing method defined as claim 3 which is different from that disclosed in Melnik.

Accordingly, one of ordinary skill in the art would not find amended claims 1 or 8 to be anticipated by Melnik or by Melnik "as evidenced by Albrecht". Applicants rely upon their arguments regarding claim 1 to support the patentability of claim 2.

With respect to claim 8, claim 8 calls for a light-emitting nitride semiconductor device comprising an epitaxial nitride layer with a light-emitting device structure formed on a self supported nitride semiconductor substrate of amended claim 1, and, accordingly, amended claim 8 is not anticipated by the same reason as discussed above.

Rejection of Claims 1, 2 and 8 as obvious over Albrecht in view of Melnik.

Applicants respectfully submit that it would not have been obvious to one of ordinary skill in the art at the time the present invention was made to grow the nitride semiconductor as claimed in amended claim 1, that is, the nitride semiconductor with a FWHM of 50 seconds or less for the (20-24) plane, even if the nitride semiconductor as taught by Albrecht had been grown to the larger crystal size disclosed in Melnik.

It is apparent for the same reason as earlier discussed that the material of Albrecht does not possess a FWHM of 50 seconds or less for the (20-24) plane. Therefore, claim 1 is not obvious over Albrecht in view of Melnik.

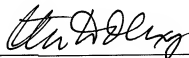
Applicants rely upon their arguments for claim 1 to support the patentability of claim 2, and for claim 8, the arguments are essentially the same as with respect to claim 1.

Withdrawal and allowance is requested.

Clarification of the Record

To clarify the record, Applicants do **not admit** that the FWHM value for the (20-24) plane might almost be equal to that for the (0002) plane. The subject matter of the present invention originated from the concept that the FWHM value for the (20-24) plane is different from that for the (0002) plane.

Respectfully submitted,



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